TABLE 2. CONSOLIDATED ARSENIC PHASES

Phase Grouping	Phase	Phase Description
As Phosphate	As Phosphate	Arsenic bearing phosphate: although naturally occurring forms are rare (Arsenocrandallite- $CaAl_3AsPO_4OH_6$), these may be metastable forms of phosphate with sorbed arsenic formed by secondary soil
As_2O_3	As_2O_3	Arsenic trioxide: a common pyrometallurgical-formed phase that is common to arsenic kitchens or copper smelters. It can also be found as a product in old formulas for herbicides, pesticides, and rodenticides.
FeAs Oxide	FeAs Oxide	Iron oxide (FeOOH) with sorbed As and Pb, probably from soil.
Fe & Zn Sulfates	FeAs Sulfate	Iron-rich sulfates: probably related to jarosite ($KFe_3(OH)_6(SO_4)_2$) or plumbojarosite ($PbFe_3(OH)_6(SO_4)_2$). Can form in oxide zone of hydrothermal deposits, but is also common to baghouse dust associated with Cu-Pb smelters.
	$ZnSO_4$	Zinc sulfates: recognized by an elemental composition dominated by zinc, sulfur, and oxygen with minor quantities of Pb, As, and/or Cd. Generally found as inclusions in slag or in baghouse dust and sometimes used in commercial products.
FeAsO	FeAsO	Iron oxide (FeOOH) that is highly enriched with arsenic; probably a flue dust.
MnAs Oxide	MnAs Oxide	Arsenic sorbed to the surface of manganese oxide-containing particles in soil. Formed by release of arsenic from soluble forms. Recognized by an elemental composition dominated by manganese, arsenic, and oxygen.
PbAs Oxide	PbAs Oxide	A product released from smelter flues and sometimes used in commercial products. Recognized by an elemental composition dominated by lead, arsenic, and oxygen.
Pyrite	Pyrite	FeS_2: a gaunge mineral associated with base-metal ore deposits. Pyrite may contain small quantities of arsenic or have arsenic sorbed to its oxidized surface.
Sulfosalts	AgAsS	Silver arsenic sulfides: a mineral form related to mining activity (from a class of minerals referred to as sulfosalts). These ores of silver may be in the chemical form of Proustite (Ag_3AsS_3), Xanthoconite (Ag_3AsS_3), Pearceite ($(AgCu)_2As_2S_{11}$, or Polybasite ($(AgCu)_{16}(Sb,As)_2S_{11}$.
	Sulfosalts	A group consisting of more than 100 forms of unoxidized minerals composed of metal or semimetals and sulfur, distinct from a sulfide. These include numerous arsenic-bearing phases: Tennantite ($Cu_{12}As_4S_{13}$) and Enargite (Cu_3AsS_4) are perhaps the most common.
Minor Constituents	AsMO	Arsenic-metal oxides: these are arsenic-rich oxides formed from pyrometallurgical processes. Common associated elements (M) include Pb, Sb, Cu, Zn, and/or Cd.
	$AsMSO_4$	Arsenic-antimony oxide: this is a common pyrometalurgically formed phase that is common to arsenic kitchens. Its occurrence is significant in “dirty” or “black” arsenic and is still found in trace quantities in “white” arsenic.
	AsSbO	Arsenic-antimony oxide: this is a common pyrometalurgically formed phase that is common to arsenic kitchens. Its occurrence is significant in “dirty” or “black” arsenic and is still found in trace quantities in “white” arsenic.
	Barite	Barium sulfate: common gaunge mineral with base metals. Will adsorb lead and arsenic during smelting.
	Clays	Arsenic sorbed to the surface of soil-forming clays (hydrated, Al-Mg silicates).
	Paint	Arsenic may be present in some very old paint pigments or as a trace contaminant in lead, copper, and antimony pigments.
	Pb Solder	Lead solder with trace levels of arsenic. Recognized by an elemental composition dominated by lead and tin with minor base metals.
	Pb-As Vanidate	A phase probably associated with mining or smelting of copper-rich ores, not used in commercial products. Recognized by an elemental composition dominated by lead, arsenic, vanadium, and oxygen.
	PbAsMO	Lead-Arsenic metal oxides: these are lead-arsenic rich oxides formed from pyrometallurgical processes. Common associated elements (M) include Sb, Cu, Zn, and/or Cd.
	PbAsSbCuO	Lead-Arsenic metal oxides: these are lead-arsenic rich oxides formed from pyrometallurgical processes.
	$PbCrO_4$	A common lead pigment in paint and a rare form of lead.
	PbMO	Lead-metal oxides: these are lead-rich oxides formed from pyrometallurgical processes. Common associated elements (M) include As, Sb, Cu, Zn, and/or Cd.
	PbMS	Lead-metal sulfides: these are lead-rich oxides formed from pyrometallurgical processes. Common associated elements (M) include As, Sb, Cu, Zn, and/or Cd.
	$PbMSO_4$	Lead-metal sulfates: these are lead-rich oxides formed from pyrometallurgical processes. Common associated elements (M) include As, Sb, Cu, Zn, and/or Cd.
	Slag	A waste by-product of pyrometallurgical activity. Recognized by an elemental composition dominated by silica, calcium, iron, and oxygen with variable quantities of Pb, As Cu, and/or Zn.
	TiO_2	Rutile or anatase with surface sorbed arsenic in small quantities. Recognized by an elemental composition dominated by titanium and oxygen.
	$ZnSiO_4$	Zinc silicate, recognized by an elemental composition dominated by zinc, silica, and oxygen with minor quantities of Pb, As, and/or Cd. Generally found as inclusions in slag or in baghouse dust and sometimes used in commercial products.